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COMP90082-2024-FL-Koala Home

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Background Description

Radiation oncology at ONJ within Austin Health represents a critical intersection of medical expertise and technological innovation in cancer treatment. With the ever-evolving landscape of oncological research and technology, the department continually seeks to optimize its processes to deliver the best possible care to patients.

Central to the treatment process are advanced imaging techniques such as CT and MRI, which provide crucial insights into the location and extent of tumors within patients' bodies. These images serve as the foundation for treatment planning, where precise calculations and simulations are performed to determine the optimal delivery of radiation to target cancerous tissues while minimizing damage to healthy surrounding tissue.

The linchpin in this treatment paradigm is the linear accelerator, a sophisticated piece of machinery that generates high-energy radiation beams used to eradicate cancer cells. The precise calibration and delivery of these beams are guided by complex algorithms and calculations, which are often facilitated by custom Python scripts.

Given the inherently interdisciplinary nature of radiation oncology, the department comprises individuals with diverse skill sets and backgrounds, ranging from medical professionals to technologists and researchers. This diversity presents both challenges and opportunities in terms of streamlining processes and ensuring seamless collaboration.

Historically, the execution of Python scripts within the department has been a decentralized and ad-hoc affair. Scripts are often stored on individual workstations or shared drives, making version control and access management cumbersome tasks. Furthermore, the reliance on Python as the scripting language presents challenges for non-technical users who may lack the necessary environment setup to execute these scripts.

The need for a centralized, user-friendly solution to script management and execution becomes evident in this context. By consolidating scripts into a GitHub repository and providing a web-based interface for their execution, the department aims to overcome these challenges and unlock new efficiencies in its workflow.

Moreover, the decision to leverage GitHub as the version control platform aligns with broader trends in collaborative software development and open science initiatives. GitHub's robust features for code management, issue tracking, and collaboration make it an ideal choice for fostering transparency and reproducibility within the department's research and development efforts.

In summary, the background of the project underscores the critical role of Python scripts in the radiation oncology workflow and the imperative to modernize and streamline their management and execution. By embracing web technologies and version control best practices, the department seeks to empower its team members to work more efficiently and collaboratively towards the common goal of advancing cancer care.

Project Overview

The project aims to streamline the management and execution of Python scripts used in radiation oncology at ONJ, a department within Austin Health. These scripts facilitate various tasks related to treating cancer patients using imaging devices and a linear accelerator for radiation delivery. The current process involves manual execution of scripts, posing challenges in version control, accessibility, and maintenance.

To address these issues, the project proposes two main components:

1. **Prototype Web Interface for Script Execution:** Utilizing Flask or a suitable alternative, a web-based dashboard will be developed. This interface will allow users to execute scripts without the need for Python installation. It aims to simplify the execution process, particularly for non-Python users, and enable centralized access to scripts.
2. **GitHub Repository for Version Control:** The project will organize the scripts into a GitHub repository, enabling version control, collaboration, and centralized access. GitHub's features, such as branching, pull requests, and user management, will facilitate efficient script management and development.

Goals and Motivation

Goals:

1. **Streamline Script Execution:** Develop a user-friendly web interface that enables easy execution of Python scripts without requiring Python installation. This interface should be intuitive for users with diverse technical backgrounds.
2. **Centralize Script Management:** Establish a GitHub repository to organize scripts, enabling version control, collaboration, and centralized access. This ensures that the latest versions of scripts are readily available and changes are tracked systematically.
3. **Enhance Scalability and Maintenance:** Design the dashboard and GitHub repository to accommodate future script additions and categorization. The system should be scalable and easy to maintain, allowing for seamless integration of new scripts and updates.
4. **Ensure Security and Compliance:** Implement security measures to protect sensitive patient data and ensure compliance with regulatory requirements. Access control mechanisms should be in place to restrict unauthorized access to scripts and data.

Motivation:

1. **Enhanced Efficiency:** The current decentralized approach to script management leads to inefficiencies in accessing, updating, and executing scripts. By centralizing script storage and providing a web-based interface for execution, the department aims to reduce the time and effort required to perform routine tasks, thereby increasing overall productivity.
2. **Improved Accessibility:** Many of the scripts used within the department require a Python environment for execution, posing a barrier for non-technical users who may lack the necessary software setup. By providing a user-friendly web interface for script execution, individuals across diverse skill sets can easily access and utilize these scripts without the need for Python installation.
3. **Version Control and Collaboration:** Without a centralized repository and version control system, tracking changes to scripts and collaborating on development becomes challenging. By leveraging GitHub, the project aims to establish a robust version control mechanism that enables collaboration, tracks changes, and ensures that team members are always working with the latest versions of scripts.
4. **Scalability and Maintenance:** As the department evolves and new scripts are developed, the need for a scalable and maintainable solution becomes increasingly apparent. By designing the web interface and GitHub repository to accommodate future additions and updates, the project lays the foundation for long-term scalability and ease of maintenance.
5. **Security and Compliance:** Handling sensitive patient data requires adherence to strict security and compliance standards. By centralizing script management within a secure GitHub repository, the department can implement access control measures to ensure that only authorized personnel have access to scripts and patient data, thereby mitigating the risk of data breaches or unauthorized use.
6. **Innovation and Collaboration:** By modernizing its script management infrastructure, the department can foster a culture of innovation and collaboration among team members. The centralized repository and web interface provide a platform for sharing ideas, collaborating on script development, and driving continuous improvement in cancer treatment processes.

Persons

1. Clinical Oncologist (Dr. Patric Wang)

- Background: Experienced oncologist specializing in radiation therapy.
- Role: Oversees patient treatment plans and relies on accurate data management.
- Needs: Access to scripts for data analysis and management, easy-to-use interface, assurance of data security and integrity.
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Dr. Patric Wang



GENDER Male
AGE 33
LOCATION Melbourne
OCCUPATION Clinical Oncologist

Dr. Patric Wang is a meticulous Clinical Oncologist from Melbourne, dedicated to providing tailored and data-driven cancer care to his patients.

Personality
Dr. Wang is meticulous, detail-oriented, and dedicated to his patients' well-being. He is known for his calm demeanor and ability to remain composed under pressure. He values efficiency and precision in all aspects of his work.

Skills
Dr. Wang possesses excellent communication skills, both in conveying complex medical information to patients and collaborating with fellow healthcare professionals. He has a keen analytical mind and excels in problem-solving.

MOTIVATION
Dr. Wang is deeply motivated by a desire to provide the best possible care for his patients. He understands the critical role that accurate data management plays in ensuring optimal treatment outcomes. By having access to reliable data analysis tools and a secure platform for managing patient information, Dr. Wang can make more informed decisions and tailor treatment plans to meet each patient's specific needs.

GOALS
Ensure that every patient receives personalized, effective radiation therapy treatment. Stay updated on the latest advancements in oncology research and technology to continuously improve patient care.

FRUSTRATION
Outdated or inefficient data management systems can slow down Dr. Wang's ability to access critical patient information and create treatment plans promptly. Complex or unintuitive interfaces may lead to frustration and errors in navigating patient records and treatment histories.

2. Radiation Therapist (Dr. Laura Kim)

- Background: Clinical staff responsible for operating imaging devices and linear accelerators.
- Role: Executes treatment plans and manages patient data during therapy sessions.
- Needs: Quick access to scripts for file management and data processing, user-friendly interface compatible with clinical workflow.
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Dr. Laura Kim



GENDER Female
AGE 34
LOCATION Melbourne
OCCUPATION Radiation Therapist

With a solid background in radiation therapy, Dr. Laura Kim is dedicated to enhancing patient care through precise and effective treatment management, continually seeking ways to merge her technical expertise with intuitive software.

Personality

Laura holds a Bachelor's degree in Radiation Therapy and has worked as a Radiation Therapist for five years. She is committed to providing the best care for cancer patients through precise and effective treatment. While proficient in the technical aspects of radiation therapy, Laura finds the complexities of Python scripting and data management outside her primary expertise.

Skills

- Proficient in operating imaging devices and linear accelerators.
- Experienced in executing treatment plans and monitoring patient responses.
- Capable of maintaining accurate treatment records and managing patient data.
- Basic understanding of Python and scripting, but prefers more intuitive tools for daily tasks.

MOTIVATION

The Radiation Therapist is motivated by the necessity for an interface that simplifies their workflow, ensuring quick access to essential scripts for file management and data processing without the steep learning curve typically associated with Python scripting. They desire a user-friendly interface that seamlessly integrates into their clinical workflow, allowing for intuitive navigation and easy execution of treatment-related tasks. This need is rooted in the desire to minimize time spent on technical complexities, enabling the therapist to focus more on patient care and less on navigating software, thereby enhancing efficiency and reducing the potential for errors during the critical phases of patient treatment.

GOALS

- Streamline the process of managing patient files and treatment data to reduce setup times and potential errors.
- Improve efficiency in script handling to allow more time for patient care and less for technical troubleshooting.
- Enhance personal competency in using software interfaces without the need for extensive programming knowledge.

FRUSTRATION

- Overwhelmed by Python's complexity, impacting patient focus.
- Faces delays and errors from non-intuitive interfaces.
- Relies heavily on IT for script fixes, causing delays.

3. Medical Physicist (Dr. Andy Tina)

- Background: Physics expert specializing in radiation therapy technology.
- Role: Ensures the safe and accurate delivery of radiation doses to patients.
- Needs: Version control for scripts, integration with existing hospital systems, ability to customize scripts for specific research or clinical needs.

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Dr. Andy Tina



GENDER Female
AGE 43
LOCATION Melbourne
OCCUPATION Medical Physicist

Passionate Medical Physicist Dr. Andy Tina from Melbourne is dedicated to revolutionizing radiation oncology through advanced technology and interdisciplinary collaboration, focusing on patient-centered and innovative treatment methods.

MOTIVATION

Andy Tina's motivation is rooted in her belief in the power of technology to transform treatment outcomes. She is dedicated to leveraging advanced imaging and radiation therapies to not only extend lives but also enhance the quality of those lives. Andy's goal is to seamlessly integrate cutting-edge treatment options with a deep sense of empathy and understanding, ensuring that patients receive care that is not just effective, but also kind and considerate. This blend of technical prowess and compassionate care is what fuels her ongoing quest for innovation in the field of radiation oncology.

Personality

Andy Tina is a passionate Director of Radiation Oncology Technology, focused on using advanced technology to improve treatment outcomes and quality of life for cancer patients, with a dedication to innovative treatment methods.

Skills

Andy Tina excels in advanced imaging, radiation therapy equipment management, treatment planning, interdisciplinary collaboration, and pioneering innovative treatment methods, and she doesn't have any skills about IT.

GOALS

Andy Tina's goal is to revolutionize radiation oncology by seamlessly integrating cutting-edge technology with compassionate care, enhancing both the effectiveness and the humanity of cancer treatment.

FRUSTRATION

Andy Tina's frustration lies in the limitations of current technology and the slow pace of adopting new innovations, which often restricts her ability to offer the most advanced and personalized treatments to every patient.

4. Software Developer (John Alex)

- Background: IT professional with experience in software development.
- Role: Develops and maintains the web interface and GitHub repository.
- Needs: Clear requirements from clinical staff, flexibility to adapt to changing needs, collaboration tools for team communication and project management.

o

John Alex



GENDER Male
AGE 30
LOCATION Melbourne
OCCUPATION Software Developer

A versatile and proactive software developer from Melbourne. John excels in creating dynamic web solutions and thrives in collaborative environments, aiming to significantly improve clinical workflows with user-friendly interfaces.

Personality
John Alex is a proactive and adaptable software developer who thrives in dynamic environments. He is known for his excellent problem-solving skills and ability to think outside the box to find innovative solutions.

Skills
Proficient in various programming languages and web development frameworks. Familiar with version control systems like Git and GitHub. Strong analytical and debugging skills. Excellent communication and interpersonal skills for collaborating with cross-functional teams.

✓ MOTIVATION

John is motivated by the opportunity to contribute to meaningful projects that have a positive impact on people's lives. He finds fulfillment in developing user-friendly interfaces that improve efficiency and usability for clinical staff. John also enjoys the continuous learning and growth opportunities that come with working in the dynamic field of software development.

GOALS
Develop and maintain a user-friendly web interface that meets the needs of clinical staff, providing clear access to patient data and treatment plans. Ensure the security and integrity of the GitHub repository, implementing best practices for version control and code management. Ans to meet each patient's specific needs.

FRUSTRATION
Ambiguous or changing requirements from clinical staff can lead to delays and challenges in the development process. Limited resources or support for implementing new features or addressing technical issues may hinder John's ability to meet project deadlines.

5. Research Fellow (Dr. Adam Jackson)

- Background: Medical researcher interested in analyzing treatment outcomes and optimizing protocols.
- Role: Conducts research projects using patient data and treatment logs.
- Needs: Access to scripts for data analysis and visualization, ability to contribute to script development and share findings with the team.

Dr. Adam Jackson



GENDER Male
AGE 35
LOCATION Austin, Texas
OCCUPATION Medical Researcher In Radiation Oncology

Dr. Adam Jackson is a passionate Radiation Oncology Research Fellow dedicated to revolutionizing cancer treatment through advanced data-driven research.

Personality
Dr. Jackson is analytical, detail-oriented, and passionate about leveraging technology to improve patient outcomes. He is collaborative, always eager to share knowledge and findings with his colleagues, and appreciates the value of teamwork in advancing medical research. Despite his serious dedication to work, he has a compassionate side that is motivated by the well-being of patients.

Skills
Expert in medical data analysis using Python, pandas, NumPy, and Matplotlib. Strong foundation in medical research and oncology treatments. Skilled at translating complex data into clear, actionable insights for varied audiences.

✓

Dr. Jackson is driven by the potential to directly impact patient care and outcomes through his research. He believes that through meticulous analysis and the optimization of treatment protocols, significant strides can be made in the fight against cancer.

A personal connection to cancer, either through a family member or close friend, further fuels his dedication to his work.

GOALS

- To enhance the efficiency and effectiveness of cancer treatment protocols through rigorous data analysis and research.
- To contribute to the development and refinement of scripts that automate the analysis of treatment outcomes.
- To foster a collaborative environment where research findings are easily shared and integrated into clinical practice.

FRUSTRATION

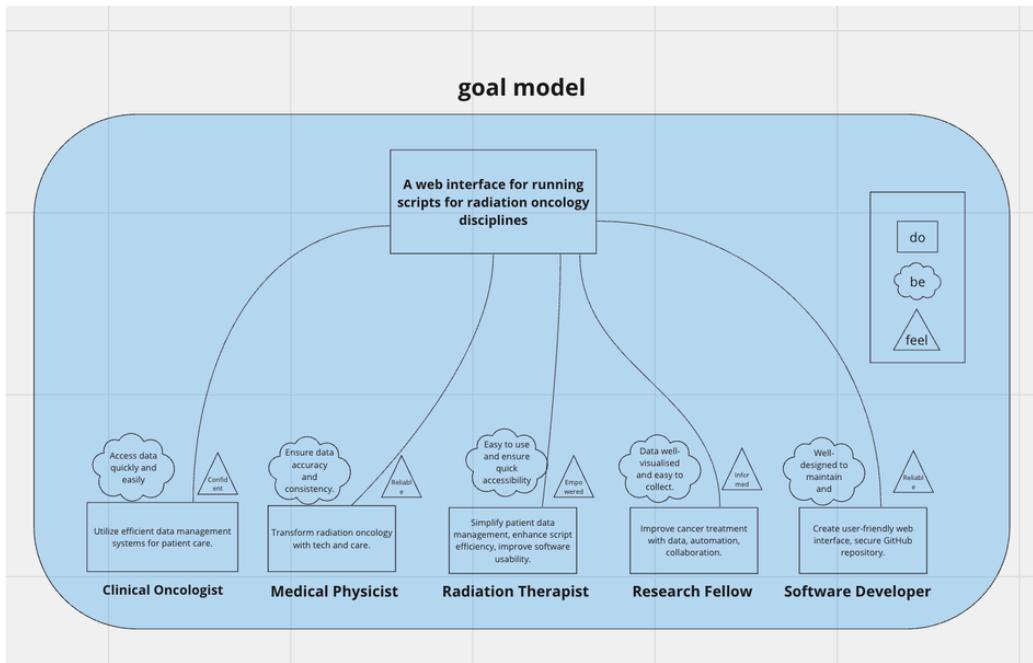
- Difficulty in accessing up-to-date and centralized patient data and treatment logs for analysis due to fragmented systems or siloed data storage.
- Encountering resistance to the adoption of new technologies or protocols based on his research findings, often due to a lack of understanding or the conservative nature of medical professionals.
- Challenges in collaborating with other researchers or clinicians who may not have the technical expertise to understand the complexities of his work, making it hard to communicate the importance and potential impact of his findings.

DO-BE-FEEL and GOAL MODEL

DO-BE-FEEL List:

do / be / feel			
Roles	Do(Functional Goal)	Be(Quality Goal)	Feel(Emotional Goal)
Clinical Oncologist (Dr. Patric Wang)	Utilize efficient data management systems for patient care.	Access data quickly and easily.	Confident
Medical Physicist (Dr. Andy Tina)	Transform radiation oncology with tech and care.	Ensure data accuracy and consistency.	Reliable
Radiation Therapist (Dr. Laura Kim)	Simplify patient data management, enhance script efficiency, improve software usability.	Easy to use and ensure quick accessibility.	Empowered
Research Fellow (Dr. Adam Jackson)	Improve cancer treatment with data, automation, collaboration.	Data well-visualised and easy to collect.	Informed
Software Developer (John Alex)	Create user-friendly web interface, secure GitHub repository.	Well-designed to maintain and update.	Reliable

GOAL Model:



Requirement analysis

Key content

- Summary
- User story classification
- Product backlog

According to our clients needs, product backlog is implemented with epics: script execution and monitoring; script management and integration, and user access and security, and user experience and dashboard design. Product backlog is designed including priority and size estimation, which can be considered as a requirement of project with acceptance criteria for each user story. The classification of priority and size estimation is defined as following.

User stories classification:

Size Estimation	
Small	User stories that can be completed in less or equal than 1 day by one person.
Medium	User stories that can be completed in 2 to 4 days by one person.
Large	User stories that can be completed in 5 to 7 days by one person.

Priority	
Must have	Non-negotiable features that must be implemented.
Should have	Important features that can add significant value.
Could have	Features that can add value but impact a little if left out.
Will not have	Features that are not a need for the project in this specific time-frame.

Product backlog

ID	Epic	User story	Priority	Size estimation	Acceptance Criteria
1	Script Execution and Monitoring	As a radiation therapist, I want the interface to automatically handle file paths when running scripts so that I can concentrate on patient care instead of software navigation.	Must have	Large	<ul style="list-style-type: none">• Interface automatically detects and inputs file paths for scripts.• Therapist can execute scripts without manual path adjustments.• System verifies path accuracy before script execution.

2	Script Execution and Monitoring	As a medical physicist, I want to run a specific script from a web interface so that I can perform routine tasks without needing to install Python or understand the command line.	Must have	Large	<ul style="list-style-type: none"> Web interface allows selection and execution of scripts. No Python installation or command line knowledge needed. Interface provides immediate visual confirmation when script starts.
3	Script Execution and Monitoring	As a medical physicist, I want to see the output of scripts so that I can know if the scripts are executed successfully or not.	Must have	Small	<ul style="list-style-type: none"> Script execution results are displayed upon completion. Success or failure message is clearly indicated. User can request detailed execution logs if needed.
4	Script Management and Integration	As a department administrator, I need to ensure that only authorized personnel can modify scripts so that the system integrity is maintained and misconfigurations are avoided.	Must have	Small	<ul style="list-style-type: none"> Only users with specific roles can modify script settings. Unauthorized modification attempts are logged and alerted. System performs regular audits of script modifications.
5	Script Management and Integration	As a user(all positions), I want to easily upload new scripts into the interface while ensuring they meet operational standards so that users can access the latest scripts and the system remains secure and functional.	Must have	Small	<ul style="list-style-type: none"> Users can upload scripts through a secure interface. Each script undergoes a compatibility and security check. Successful uploads are confirmed; issues prompt guidance for resolution.
6	Script Management and Integration	As a user(all positions), I want to easily delete existing scripts from the interface so that the system integrity is maintained and misconfigurations are avoided.	Must have	Small	<ul style="list-style-type: none"> Users can delete scripts with proper authorization. Deletion requests prompt a confirmation to prevent accidental loss. System logs all deletion activities for audit purposes.
7	Script Execution and Monitoring	As a clinical researcher, I want the interface to adapt to various script outputs and allow me to view and analyze results directly so that I can efficiently conduct my studies without needing additional tools or feedback from the system.	Must have	Medium	<ul style="list-style-type: none"> Interface dynamically adjusts to show various script outputs. Researchers can filter and analyze results within the platform. Supports exporting data for further analysis without external tools.
8	Script Execution and Monitoring	As a medical physicist, I want to save the output of the script so I can view the output repeatedly.	Must have	Small	<ul style="list-style-type: none"> Users can save script outputs with date and time stamps. Saved outputs are accessible for future reference. System provides options for organizing and labeling saved results.

9	User Experience and dashboard design	As a medical physicist, I want to have a dashboard that displays the status of scripts, so that I can monitor the usage and functionality of the scripts being run.	Must have	Medium	<ul style="list-style-type: none"> Dashboard displays real-time status of script executions. Users can customize which script information is displayed. System provides alerts or notifications for script events.
10	Script Management and Integration	As a software engineer, I want to integrate a continuous integration/continuous deployment (CI/CD) pipeline into our GitHub repository for testing and deployment of our scripts.	Must have	Medium	<ul style="list-style-type: none"> Integration of CI/CD pipeline into GitHub repository. Pipeline supports automatic testing and deployment of scripts. Documentation provided for setup and management of the CI/CD process.
11	User access and Security	As a clinical researcher, I want to log in to the web interface, so that I can access, manage and execute the scripts helping analyse patients' data.	Should have	Medium	<ul style="list-style-type: none"> Secure login mechanism for accessing the web interface. Users can manage and execute scripts post-login. System supports password recovery and account management.
12	User Experience and dashboard design	As a radiation therapist, I need to access detailed usage instructions for each script directly from the dashboard so that I can use them correctly without extensive training.	Should have	Small	<ul style="list-style-type: none"> Dashboard provides access to detailed script instructions. Instructions include prerequisites, steps, and expected outcomes. Accessibility features ensure instructions are easy to understand.
13	Script Management and Integration	As a system administrator, I want to categorize and label additional scripts for future integration so that the system can easily scale up to 20 scripts without confusing the users.	Could have	Medium	<ul style="list-style-type: none"> Admin can create and manage script categories. Interface supports adding labels and descriptions to scripts. System can scale to support up to 20 categorized scripts.
14	User Experience and dashboard design	As a research fellow, I want a user-friendly dashboard so that I don't need to spare extra time to learn how to use the dashboard.	Could have	Medium	<ul style="list-style-type: none"> The dashboard design follows established UX/UI best practices. Key functionalities are accessible within two clicks from the home screen. A brief interactive tutorial is available for first-time users.
15	User Experience and dashboard design	As a medical physicist, I want to customize my dashboard to highlight frequently used scripts and critical information so that I can streamline my daily workflow and improve efficiency.	Could have	Medium	<ul style="list-style-type: none"> Users can customize the layout and information on their dashboard. Changes to the dashboard are saved and persist between sessions. Customization options are intuitive and require minimal training.

16	User access and Security	As an IT department engineer, I want to be able to grant account access to the web interface so that security of the web interface and data is guaranteed.	Could have	Medium	<ul style="list-style-type: none"> IT can grant or revoke web interface access. Access levels are assignable based on user roles. All changes to account access are logged for security auditing.
17	Script Management and Integration	As a software developer, I want a comprehensive deployment guide for the Flask-based web interface so that I can efficiently set it up on our servers without having to learn new technologies.	Could have	Small	<ul style="list-style-type: none"> The guide provides step-by-step instructions for deploying the Flask web interface. Documentation includes requirements for server environments and dependencies. Troubleshooting section addresses common issues during deployment.
18	Script Management and Integration	As a software developer, I need the website to integrate smoothly with SQL-based databases so that I can manage data consistently with other applications we use.	Could have	Medium	<ul style="list-style-type: none"> The web interface seamlessly connects to SQL-based databases. Documentation details the process for setting up and configuring the database connection. The system supports data consistency checks and conflict resolution.
19	User access and Security	As a research fellow, I want to access different users' output records so I can teamwork better.	Will not have	Medium	<ul style="list-style-type: none"> Research fellows can access output records of different users based on permissions. The interface allows filtering and searching through output records. Collaboration tools are integrated to facilitate sharing and discussion of results.
20	Script Execution and Monitoring	As a Clinical Oncologist, I want to schedule scripts to run at specific times or intervals so that routine tasks can be automated, reducing manual effort and increasing consistency.	Will not have	Medium	<ul style="list-style-type: none"> Users can schedule scripts to run at specified times or intervals. The system provides confirmation that scripts are scheduled correctly. Users receive notifications upon script completion or in case of errors.
21	Script Management and Integration	As a software developer, I need to implement a robust backup and recovery system for the script interface and its data so that we can quickly restore functionality in the event of a system failure or data loss.	Will not have	Medium	<ul style="list-style-type: none"> The system includes options for regular automated backups. Users can manually initiate backups and select data for backup. The recovery process is clearly documented and can be executed with minimal steps.

22	User Experience and Dashboard Design	As a non-English speaking healthcare worker, I want the interface and documentation to be available in multiple languages so that I can understand and utilise the system effectively.	Will not have	Medium	<ul style="list-style-type: none"> The interface supports multiple languages, including all UI elements and documentation. Users can easily switch languages within the interface. Language preferences are saved for future sessions.
23	Script Execution and Monitoring	As a software developer, I need to monitor the progress of script executions in real-time so that I can quickly address any issues that arise during the process.	Will not have	Medium	<ul style="list-style-type: none"> The interface provides real-time monitoring of script executions. Developers can set alerts for specific events or errors during execution. The system logs all execution details for post-analysis.
24	Script Execution and Monitoring	As a software developer, I want to understand the traffic capacity and scalability of the Flask web application so that I can ensure it remains operational and responsive under expected loads.	Will not have	Medium	<ul style="list-style-type: none"> Documentation outlines the web application's traffic handling capabilities. The system includes features for monitoring and managing load. There are clear guidelines for scaling the application in response to increased traffic.

Plan

Key content

- Sprint 2 plan
- Sprint 3 plan
- Technologies proposed to use
- Risk assessment
- Infrastructure to deploy

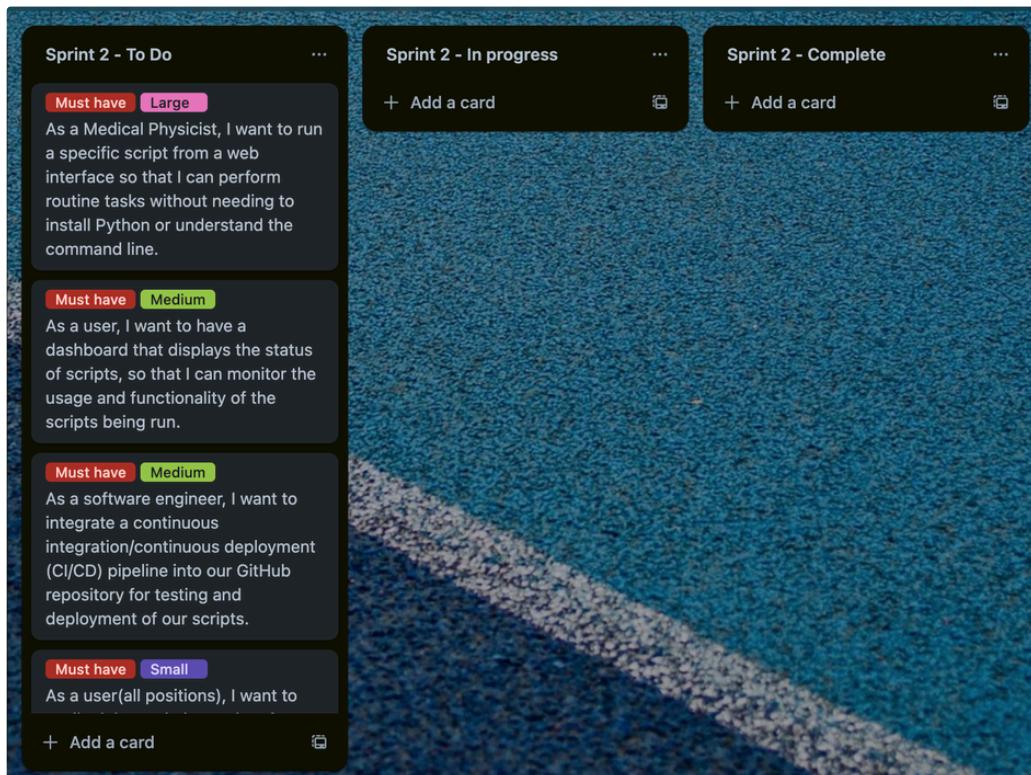
Link of our Trello board: <https://trello.com/b/1G1lpSyz/trello-agile-sprint-board-template>

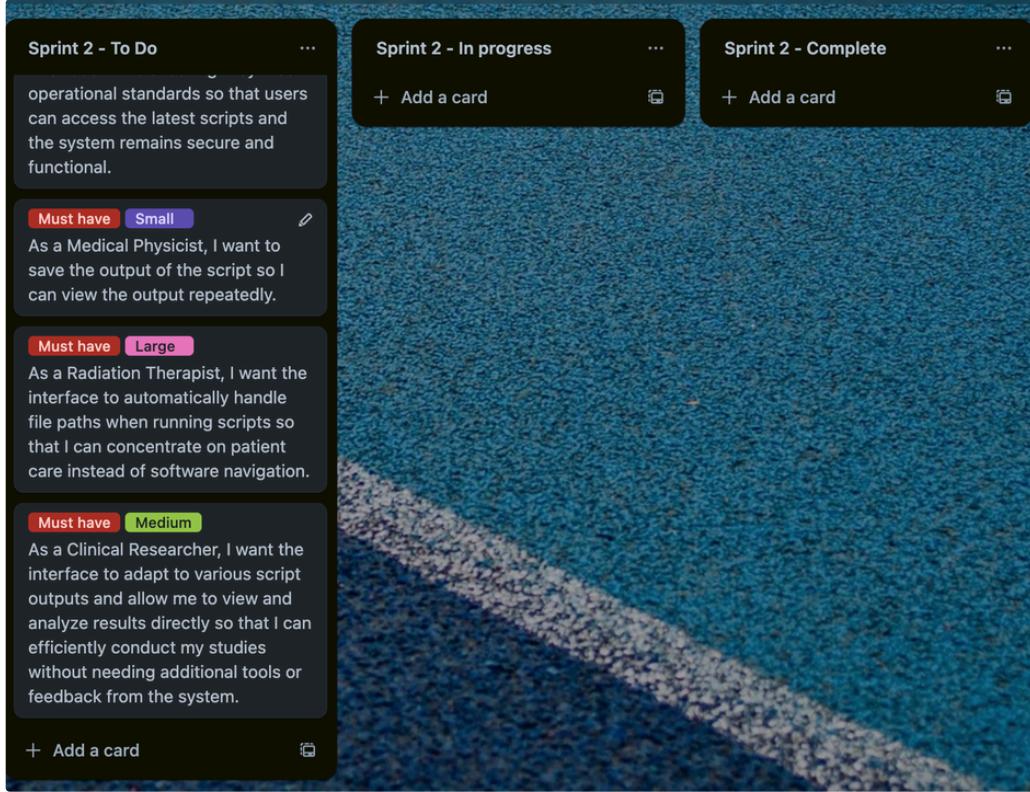
Sprint 2 Plan:

In Sprint 2, our focus is on implementing functionalities critical to the client's needs, primarily addressing user stories labeled as "Must have." with emphasizing epic of script execution and monitoring, script management and integrate. Additionally, we'll discuss the foundational logic design for the website, particularly the logic behind implementing file path changes for scripts, which is essential for our solution's architecture.

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Development Requirements:





Technologies Used:

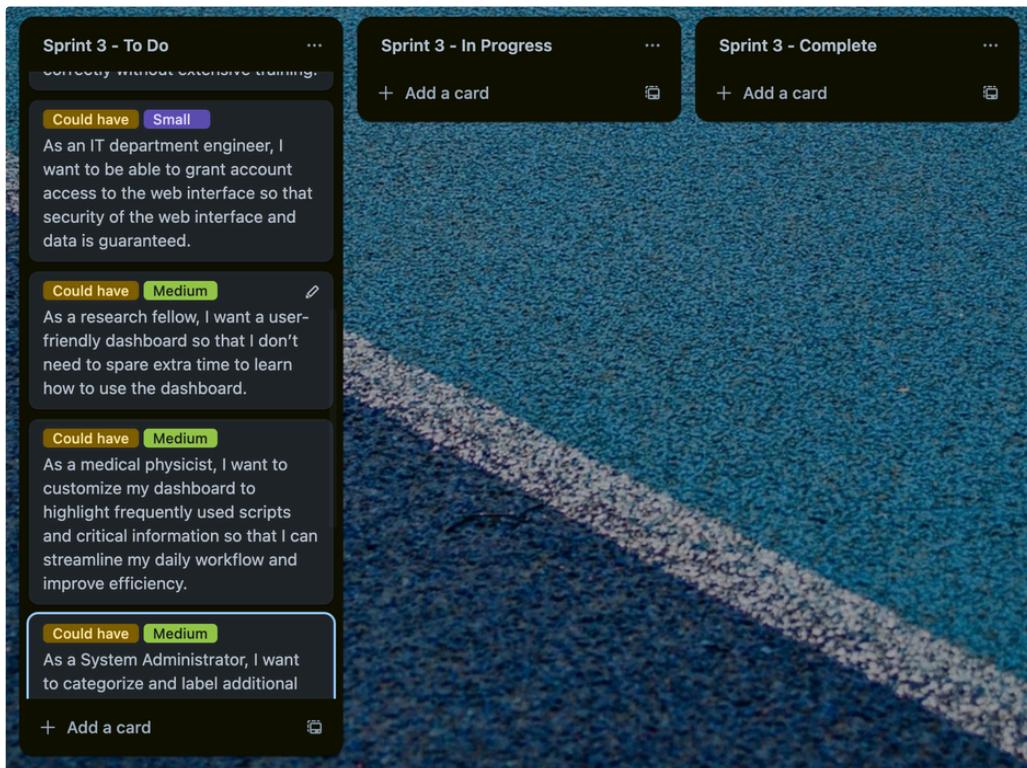
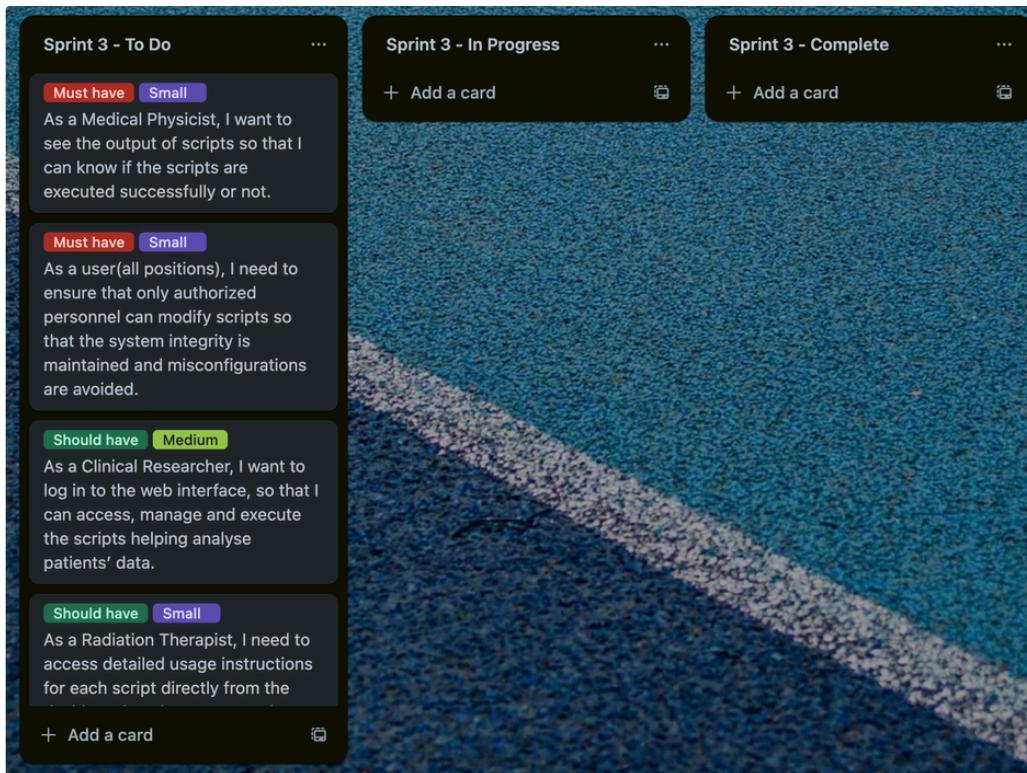
- Frontend: HTML, CSS, JavaScript (React framework)
- Backend: Flask (Python)
- Database: Mysql (for storing user information and script execution records)
- Deployment platform : Client's Healthcare Platform

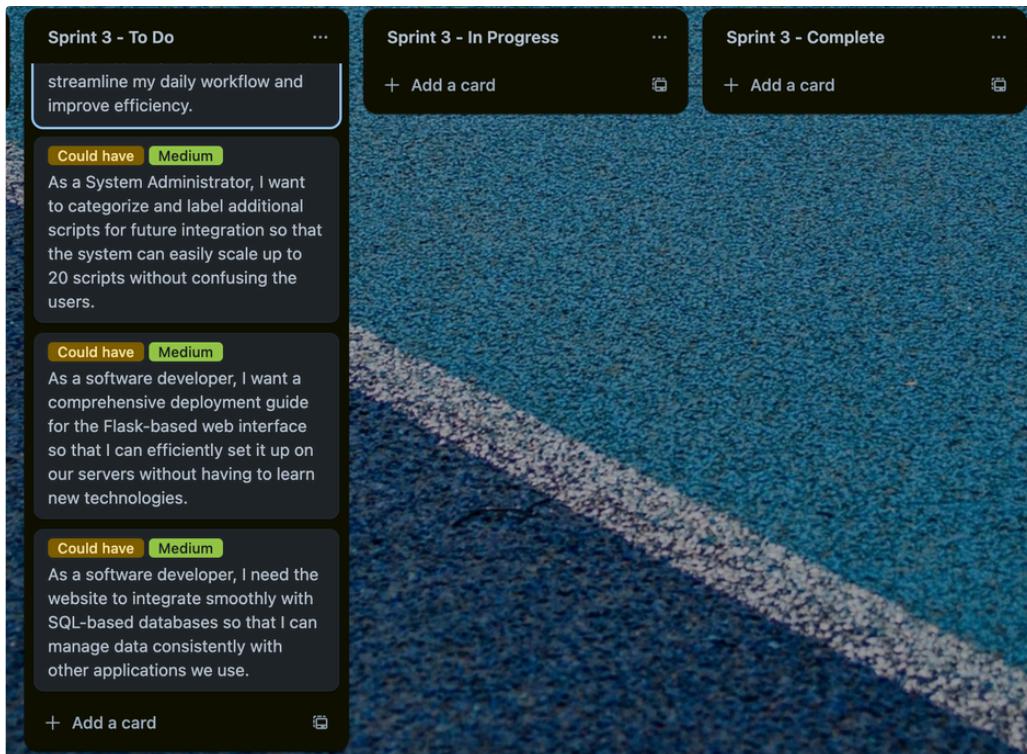
Sprint 3 Plan:

In Sprint 3, the primary focus will be on addressing the "Should Have" and "Could Have" tasks, specifically targeting improvements in the user experience and design of the dashboard. This sprint aims to enhance the overall usability and functionality of the dashboard interface, making it more intuitive and efficient for users. The team will concentrate on refining features, optimizing layout, and incorporating feedback to ensure the dashboard meets user expectations and facilitates smoother interaction with the system. By prioritizing these enhancements, we seek to elevate the user journey and provide a more engaging and effective platform for managing and monitoring tasks within the radiation oncology department's script execution and management system.

Development Requirements:

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Technologies Used:

- Frontend: HTML, CSS, JavaScript (React framework)
- Backend: Flask (Python)
- Database: Mysql (for storing user information and script execution records)
- Deployment platform : Client's Healthcare Platform

Risk Assessment

Given our situation, all team members are part-time developers, balancing internships or other coursework. This presents a risk: coordinating daily stand-up meetings may be challenging due to varying schedules, potentially impacting communication efficiency.

Furthermore, significant progress is anticipated mainly during weekends, which could delay client feedback and subsequently, our responses. This staggered working pattern necessitates a flexible approach to project management and communication.

Moreover, some team members are not well-versed in the Flask framework, as specified by the client, indicating a learning curve that could affect development speed and quality. This inexperience is a risk that we need to mitigate through additional training or allocating more time for those tasks.

Overall, we must adapt our development process to accommodate part-time availability and varying expertise levels, ensuring continuous progress and effective communication despite these challenges.

Infrastructure to deploy

1. Hardware Resources

- **Servers:** The customer opts to use their own internal servers as cloud servers. These servers have sufficient computing power and memory to meet the needs of the medical platform.

- **Storage Space:** Data storage is managed using the customer's own servers. This may involve configuring RAID arrays or something to enhance data reliability and access speed, along with backup mechanisms to prevent data loss.

2. Software Environment

- **Operating System:** A popular Windows Server version is chosen as the operating system, offering a graphical interface and broad support.
- **Python Environment:** Python and the Flask framework are installed for web application development.

3. Network Resources

- **SSL Certificate:** An SSL certificate is configured to enable HTTPS encrypted communication for the website. This is particularly important for protecting the transmission of medical information.

4. Services and Tools

- **CI/CD Tools:** GitHub Actions are used for continuous integration and continuous deployment, automating the testing and deployment processes to improve development efficiency and code quality.

5. Security Measures

- **Access Control:** Identity verification and access control mechanisms are implemented to ensure that only authorized users and medical professionals can access the backend management interface and sensitive data.

Meeting notes

Date	Meeting notes	Note
Mar 15, 2024	2024-03-15 Client meeting notes	
Mar 18, 2024	2024-03-18 Internal meeting notes	
Mar 20, 2024	2024-03-20 Stand up meeting with Wei	
Mar 21, 2024	2024-03-21 Inner-Group Assignment Discussion	
Mar 24, 2024	2024-03-24 Sprint 1 Review	

2024-03-15 Client meeting notes

Meeting overview

- Meet client for first time. Introduce team. Get project context and client needs.
- Key attendees: clients.
- Processes: Introduce with each other; Clients explain their needs; Q&A.

Meeting minutes

Date	Attendees	Notes, decisions and action items
Mar 15, 2024	All	<p>Introduction:</p> <ul style="list-style-type: none">• Leah is looking to create a webpage to run scripts that automate various tasks in the hospital radiotherapy department• Many scripts have been created by different people to save time by automating manual processes• Goal is to have a webpage where staff can easily run scripts, even if they are not familiar with coding• If script doesn't work, physicist can look at code, fix it, and update on the webpage <p>Webpage Requirements:</p> <ul style="list-style-type: none">• Create a webpage using a framework like Flask (open to other suggestions)• Nice design with categories/groups for scripts• Scripts will require various user inputs and produce different outputs• Need to handle running scripts in the background• Hosted on a university server initially, later deployed to hospital servers• Low expected traffic, a couple users per day <p>Additional Tasks:</p> <ul style="list-style-type: none">• Alongside the main webpage and repository, individual team members can choose additional small scripting tasks to automate other radiotherapy processes• Examples: Averaging 3 scanned films, offline checking of patient treatment margins• Leah to provide input data, expected output, and context for each task• Scripts work with relatively small file sizes, at most a couple GB at a time <p>Other Notes:</p>

	<ul style="list-style-type: none"> • Complete freedom given on webpage design, just keep it simple and not too busy • Documentation needed at 3 levels: <ol style="list-style-type: none"> 1. For end users on how to use each script (content from Leah) 2. How the GitHub repo and webpage is set up 3. Code comments in modified scripts • Some security required to limit script editing to approved list of staff • No need to anonymize patient data, Leah will provide pre-anonymized sample data • No major speed requirements for most scripts, open to optimizing a couple slow ones <p>Next Steps:</p> <ul style="list-style-type: none"> • Leah to cleanup requirements doc specifying must-haves vs nice-to-haves
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✓ Open action items

- Team to setup Google Drive for document sharing
- Schedule recurring fortnightly meetings, with Leah mainly coordinating with Kelvin and Lynn
- Team members to discuss splitting up tasks based on webpage, repository, scripting preferences

2024-03-18 Internal meeting notes

➊ Meeting overview

- Meeting goal: Internal feedback after clients' meeting; Decide what to do next.
- Key attendees: All team member.
- Processes: Discussion; brainstorm.

📝 Meeting minutes

Date	Attendees	Notes, decisions and action items
Mar 18, 2024	@Zhihao Liang @likong @Chloe_Duan @Yuncong Ji @Junhao KONG @yijun liu	<ol style="list-style-type: none">1. Discuss assignment 12. Select a user story template3. brainstorm user cases4. Finalize the product backlog following the client meeting5. Create a Trello workspace6. Distribute Assignment 1 tasks among team members

✓ Action Notes highlight

- Background description, client goals, motivation @Junhao KONG @yijun liu
- Analysis of requirements (User Stories or Use Cases) & Plan @Yuncong Ji @Chloe_Duan
- Development environment @likong
- Meetings & GitHub @Zhihao Liang

⌚ Decision

👉 Product backlog template

2024-03-20 Stand up meeting with Wei

➊ Meeting overview

- Meeting goal: Update each other's work; get feedback from supervisor.
- Key attendees: All team member.
- Processes: Stand-up meeting.

📝 Meeting minutes

Date	Attendees	Notes, decisions and action items
Mar 20, 2024	@Zhihao Liang @likong @Chloe_Duan @Yuncong Ji @Junhao KONG @yijun liu @Wei Wang	<ol style="list-style-type: none">1. Each member update their progress<ol style="list-style-type: none">a. @Chloe_Duan and @Yuncong Ji are still working on requirement analysisb. @Zhihao Liang has initialize github repo and make a meeting note for Mar 18, 2024 meetingc. @Junhao KONG and @yijun liu showed the progress of background description and client goal and motivation and wei suggested that those part need to be revised according to workshop material.d. @likong is working on project backlog review.2. Advice from Wei:<ol style="list-style-type: none">a. Progress Transparencyb. PO should allocate some responsibility to other team membersc. Keep updating progress

✓ Action items highlight

- ☒ Allocate responsibility to other member @Chloe_Duan

2024-03-21 Inner-Group Assignment Discussion

➊ Meeting

- Meeting goal: Check each other's work; solve problems.
- Key attendees: All team member.
- Processes: Discussion; brainstorm.

💡 Meeting minutes

Date	Attendees	Notes, decisions and action items
2024-03-21	@Zhihao Liang @likong @Chloe_Duan @Yuncong Ji @Junhao KONG @yijun liu	<ol style="list-style-type: none">1. Select tool and template for Persona and Do/Be/Feel list.2. Cooperate on creating Personas, Do/Be/Feel list and Goal Model.3. Brainstorm on requirements based on project summary.4. Discuss on possible implementation methods of some requirements.5. Set a time for the next meeting.

✓ Action items highlight

- ☒ Finish user story @Chloe_Duan @Yuncong Ji

⌚ Decision

👉 Using miro template for Persona and DO-BE-FEEL working board

2024-03-24 Sprint 1 Review

➊ Meeting overview

- Meeting goal: Finalize sprint 1 content.
- Key attendees: All team members.
- Processes: Discussion about product backlog; overview whole content.

📝 Meeting minutes

Date	Attendees	Notes, decisions and action items
2024-03-24	@Zhihao Liang @likong @Chloe_Duan @Yuncong Ji @Junhao KONG @yijun liu	<ol style="list-style-type: none">1. Continue working on requirements (user stories), and assign priority and size estimation to each requirements.2. Create product backlogs on Trello and distribute backlogs to Sprint 2 and Sprint 3 according to priority and estimated story points.3. Organise materials on Confluence.4. Tick completed items on Checklist.5. Structure the Github repository, update Readme file, and generate Release tag.6. Final check and ready to submit the assignment.

✓ Action items highlight

- Export PDF from confluence. @Chloe_Duan
- Upload PDF to Github. @Zhihao Liang

⌚ Decision

👉 Go through each user story and decide for priority and size estimation

👉 Split task for sprint 2 and sprint 3